

## ***Chapter 11***

# **Light, Glare, and Aesthetics**

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### 11.1 Primary Issues

Several residents of Vashon/Maury Island have voiced concerns about how the project would change views and the overall quality of life on the island. In addition, some residents from across Puget Sound have expressed concerns that the project would change their views. The mining operation, while zoned and operated as such for over 50 years, would accelerate in terms of activity, volume removed, and the area of exposed sand and gravel visible from outside the site. Barges, which have not been used at the site for 20 years, would become a common sight. In addition, the dock, tugs, and portions of the mining site would be lighted as required for safe operation.

The primary issues analyzed in this section include:

- What aesthetic changes would occur in the character of the existing landscape on the mine site?
- How would the reintroduction of barging affect the visual environment?

### 11.2 Affected Environment

The views of the project site for the last 20 years have consisted of primarily the existing gravel pit operation, which has resulted in about one-third of the site (81 acres) containing sparse vegetation and open ground. The remainder of the site contains forest, exposed bluffs, and shoreline, including the existing barge loading dock (Figures 11-1 and 11-2).

The visual components of the site vicinity include developed shoreline (at Sandy Shores and Gold Beach), undeveloped beaches, forested bluffs, and the open water of Puget Sound. The dock has been an idle fixture in the environment, typical of many shoreline areas along Puget Sound. The two adjacent communities impart black-gray, brown, and white tones amidst the darker tones of

surrounding forest areas, the whitish-gray tones of the beach, and the variable gray and blue tones of open waters. The existing cleared area of the mine is visible from several locations and can be seen from across Puget Sound on the mainland to the west (Figure 11-3).

The shoreline curves slightly inward toward the site, so that half or more of the site is behind bluffs and out of sight from many surrounding viewpoints. Prominent bluffs on either side of the project site also shield some of the interior portions of the property from some viewpoints, particularly views from the Gold Beach community. The inward curve of the shoreline also allows residents of Gold Beach to see the Sandy Shores community, and vice versa. Existing views of the project site from Gold Beach and Sandy Shores are shown in Figures 11-4 through 11-7. As can be seen from the views, homes within both communities are oriented toward Puget Sound and do not directly face the Glacier Northwest property. Nevertheless, the site and dock are major features of the landscape.

The overall character of the Gold Beach and Sandy Shores communities is that of a quiet, shoreline community, with observable features and activities typical of residential areas, including motorized equipment (chainsaws, lawnmowers); passenger car and small-truck traffic; and pedestrians, horseback riders, and bicyclists. Such activities are most typical during weekends, especially during good weather and near midday through the afternoons. Mornings are often quiet, with shoreline sounds including waves and the calls of seabirds. In addition, sail boats, pleasure craft, kayaks, and other recreational boating occurs in the area and commercial ship traffic is visible in the shipping lanes located between the island and the mainland.

At night, lighting can be seen along the Gold Beach and Sandy Shores communities. The project site is unlit. Viewed from the east across East Passage, the nighttime shoreline includes strings of lighting where residences have been developed along the shoreline and scattered lighting along the bluffs. These lights are interspersed among unlit areas, including the existing dock, mining site, and surrounding forested bluffs.

## 11.3 Impacts

### 11.3.1 What aesthetic changes would occur in the character of the existing landscape on the mine site?

#### 11.3.1.1 Proposed Action

Aesthetic changes would be limited to views of the site. The project would not alter people's views of other areas, including views of Puget Sound, the eastern shoreline, Tacoma, and Mount Rainier (on clear days).

Most people who would see the site have expansive views of Puget Sound, and these views dominate over other views. Notably, almost all of the homes in Sandy Shores and Gold Beach are oriented to the water and not to the site (Figures 11-5 and 11-6). These water views, which are typically the most valued, would not be affected by the project.

Viewers from Upper Sandy Shores (Figure 11-4) would see the barge against a backdrop of water within the foreground, and barge traffic would be regularly seen coming and going from the site. However, most views of the dock and loading would be framed against the background of the site or of the opposing developed community. While clearly visible, the barge loading would still not interfere with the more dominating views of Puget Sound.

Still, views of the site would obviously change if the site were rapidly mined. Under the Proposed Action or any large-scale mining scenario, views of the site from surrounding areas would change in steps as phases are cleared, mined, and reclaimed. For this analysis, visual changes of the site have been classified into four categories: changes in topography, changes in surface cover (vegetation and exposed materials), changes in activity levels, and changes in views from across Puget Sound. The following sections address these four categories of change.

**Changes in Topography.** Many people have remarked that the physical loss of the minerals that make up the site is a major impact in its own right. Such topographic changes are inevitable with surface mining, and the Applicant is proposing to remove a very large amount of material, leaving a site quite different in shape than what exists now (Figures 11-9 through 11-11). The area the site occupies would not change, but a good deal of the land mass would be removed.

Physically, Maury Island is a massive deposit of glacial materials left during Puget Sound ice advances. Mining of the site would physically remove approximately 60.5 million cubic yards of material and would greatly change the elevation and shape of the existing property.

Figures 11-9 through 11-11 show a simulation of topographic changes that would result from the project, based on terrain modeling of existing surface elevations (Figures 11-9a, 11-10a, and 11-11a) and surface elevations following completion of proposed mining based on the conceptual contouring plan in Figure 2-2a (Figures 11-9b, 11-10b, and 11-11b). The visual changes represented in Figures 11-9 through 11-11 are more obvious than actual visual changes would be for two reasons. First, simulations are based solely on topographic changes, and do not take into account changes in surface cover. Second, the color scheme on the drawings was chosen to emphasize the resulting contrasts.

These topographic changes would, quite obviously, change how the site looks. Although mining has already altered site topography, the overall “form” of the site still reflects that of southern Maury Island, with a relatively flat upland gently sloping to bluffs, which then drop off steeply about 250 feet to the shoreline. This form is interrupted by the two, horse-shoe shaped excavations left from past mining (see Figure 11-9a).

Mining would remove materials between and beyond these two excavations, leaving a relatively flat, irregularly shaped, 150-acre “floor,” framed by steep slopes on three sides (Figures 2-2A and 11-9b). The floor would be exposed to the shoreline by an opening near the loading dock area. Remaining bluffs along the shoreline would define this opening. These bluffs would slope from about 150 feet elevation at the site boundaries to near 20 feet at the opening near the dock. The bluffs would continue to block views to the interior of the site from both Sandy Shores and Gold Beach, but to a much lower degree than do the current bluffs (Figures 11-10 and 11-11).

This physical change of the site is one of the most pronounced and noticeable changes that would result from mining the site as proposed.

The first three phases would progress in a triangle pattern around the existing horseshoe-shaped depression in the central portion of the site (located above the dock). This depression was created in part by mining and in part by natural topography. The first phase

would cut behind the eastern bluff, located along the shoreline and partially blocking views from Gold Beach (see [Figures 11-6 and 11-7](#)). The second phase then would progress westward, cutting slopes below the WDNR parcel to the northwest of the site and eventually clearing to the western edge of the site (near the Adams parcels). The third phase would excavate the western edge of the site, the portion most visible to Gold Beach.

This third phase would be most disruptive to the Sestrap and Saunders properties, as these two properties would be adjacent to the mining site on three sides. Mining would clear surrounding forest up to 50 feet from these properties and would create slopes ranging from between 2:1 and 3:1 (horizontal to vertical). These slopes would start at the edge of the vegetated buffer. As elsewhere, 15-foot-wide benches would be added to the slope as needed to control erosion and sedimentation.

Also during the third phase, the project and contrasting visual appearance of the site would be most visible from the Gold Beach community, including views from Gold Beach Drive, the Gold Beach shoreline, and the Gold Beach Community Club. People would be able to see the exposed “working face” of the mine, with bulldozers pushing material downslope to collection points.

The fourth phase would then move back in an eastward direction through the central portion of the site, completing final grades for the majority of the site. At the end of this fourth phase, mining would occur adjacent to low-density housing within three parcels along the northern portion of the site. Phases 5 and 6 would then mine out toward the eastern bluff, completing final grades of the site. During Phase 6, which would occur between 15 and 40 years from the start of mining, the operation would be at its closest to the Gold Beach community. Existing topography would shield a great deal of this activity until excavation reaches the easternmost boundaries of the mining footprint, when the upper half (approximately) of the slope facing Gold Beach would be removed ([Figures 11-10a and b](#)). This would be the closest point at which active mining would be visible to many people in the community. This area would also be seen from the Sandy Shores community, which would have direct views of this phase of the operation (see [Figures 11-4, 11-5, 11-11](#)).

**Changes in Surface Cover.** Initial clearing would eliminate the green, natural appearance of forested areas, and active mining areas would appear light-gray, tan, or whitish. These lighter tones would contrast visually with the dark tones of remaining forest

along the vegetated site perimeter, in unmined areas, and on adjacent lands.

The visual “texture” would also change within active mining areas. Texture refers to the shape, outline, and overall surface features of views. Forests, with their varying heights and rough outlines, impart a soft appearance, while active mining and recently reclaimed areas can appear “flat” or linear.

Edges between cleared areas and uncleared areas would also create linear contrasts on the site. The vegetated buffer along the perimeter, along with forested areas not yet cleared, would contrast vertically with the cleared areas, creating a perceptible line. Such lines can appear unnatural in the landscape, projecting an image similar to that seen in clearcuts that are present throughout commercial forest lands in the Puget Sound region.

At any one time, up to 64 acres would be relatively void of vegetation and would impart the visual characteristics just described. As portions of the site are mined out, final reclamation would eventually restore the visual character of the surface to more natural conditions, with darker tones (mostly green) and softer texture, blending in more evenly with adjacent vegetated areas, although topographic changes would, of course, be permanent. Should mining be completed rapidly, then essentially all of the mining footprint would contrast visually with surrounding forest.

As proposed, the Applicant would hydroseed slopes and plant the floor of the mine with Douglas-fir. Grassy slopes would appear lighter green than surrounding forests and, during late summer and early fall, brown tones may predominate. Grasses and other low-growing vegetation would do little to conceal terracing, so unnatural “benches” would appear along the slope at final grade. The containment berm, which may be up to 30 feet high, would also appear unnatural without vegetative cover. Vegetation may grow in linear strips along terracing and along the containment cell, caused by variations in available groundwater and angle to the sun. With additional reclamation efforts to restore madrone forest, visual contrasts would be less apparent (see Section 5.4.3). Assuming restoration of madrone forest, mined out areas at final grade would develop similar tones and textures as existing forests within about 20 years, with noticeable improvement within about 5 to 15 years, as madrone and other vegetation take hold.

These visual changes would slowly shift about the site as mining progresses according to the plan proposed by the Applicant (Figure 2-1).

Because mining rates are market driven, the site could be mined in as few as 11 years or as many as 75 or more years. The rate of mining would have a great effect on how views would change over time, and the amount of area that would be affected at any one time.

Should mining be done rapidly, then essentially the entire visible footprint of the mine would show sharp contrasts with surrounding areas. The probable life of the mine would be in the range of 30 years, so visual changes are expected to be more gradual, and some softening of impacts is expected through restoration of vegetation in mined out areas.

**Changes in Activity Level.** In addition to visual changes in topography and groundcover, mining activities themselves would be visible elements of the environment.

Some mining would occur during hours of darkness, and lights from heavy equipment and trucks would be visible to some residents. To reduce noise, the Applicant proposes to use strobe lights at night instead of beeping alarms for required backup warning systems on heavy equipment. Residents at Sandy Shores would likely see these during nighttime operation, particularly during winter, when more work is required under darkness. Gold Beach residents would see these during some phases of the mine, particularly in the third phase during excavation of the western portion of the mine. When the mine is inactive, the nighttime landscape would appear essentially the same as it is now.

During the day, heavy equipment (bulldozers, wheel loaders, and water and fuel trucks) would be visible moving about the site. Bulldozers would be visible on the upper slopes of mining areas as they push materials down to a collection point. As under all alternatives, some material would be transported by truck, averaging five trucks per day, 6 days a week.

When present, the portable crushing plant may be visible to some residents, depending on placement. The conveyer belt system would also be visible, and its location would change as mining progresses on the site.

**Changes in Views from across Puget Sound.** A more distant viewer from across Puget Sound would also see the visual changes occurring on the project site (Figure 11-3). Reclaimed areas would appear “natural” much sooner from this perspective because of the distance. The major change in view would be caused by the contrasting colors of cleared and actively mined



areas compared to forested and reclaimed areas. Long-term topographical changes would be visible although not necessarily obvious. Some terracing may be visible and appear unnatural, especially before shrubs, trees, and groundcover begin to grow.

While people from across the Sound could see the site, being visible does not categorically indicate a significant adverse impact.

The visual impact must be evaluated within the visual context in which it is occurring. Development along the shores of Puget Sound, including Vashon/Maury Island, is commonplace. The communities of Gold Beach and Sandy Shores are also visible from many locations, as is the existing mining area.

The visual changes at the site that would occur from the Proposed Action must be considered within the context of these visual features in the immediate vicinity. Based on these considerations, the overall visual change on the site would be noticeable, but would not be so severe as to eliminate the use and enjoyment of areas.

Visual characteristics of proposed barging operations are described in Section 11.3.2.

#### **11.3.1.2 *Alternative 1***

Under Alternative 1, changes in the visual character of the site would occur more gradually and over a longer time than under the Proposed Action.

The estimated annual amount of extraction under Alternative 1 is 5.72 million tons, rather than 7.5 million tons as under the Proposed Action. The lower annual rate would not necessarily change visual impacts and, in some ways, may be greater since the mining operation under Alternative 1 is projected to last 5 years longer—40 years instead of 35 years under the Proposed Action. As with the Proposed Action, up to 64 acres would be essentially cleared of vegetation at any one time.

The Applicant's proposed 50-foot vegetated perimeter buffer and 200-foot shoreline buffer remain the same for Alternative 1. As with the Proposed Action, these buffers would assist in obscuring the views of mining.

Other impacts would be essentially the same as the Proposed Action, except they would occur at a slower speed and would continue over a longer period of time.

#### **11.3.1.3 Alternative 2**

Like Alternative 1, Alternative 2 differs from the Proposed Action by extending the expected life of the mining operation (up to 50 years, depending on market conditions).

In addition, the hours of operation under the No-Action Alternative would remain the current 7 a.m. to 7 p.m. Monday through Friday and 9 a.m. to 6 p.m. Saturday, rather than the more extended hours of mining under the Proposed Action and Alternative 1.

The Applicant's proposed 50-foot vegetated perimeter buffer and 200-foot shoreline buffer remain the same with Alternative 2. As with the Proposed Action, these buffers would assist in obscuring the views of mining.

Other impacts would be essentially the same as the Proposed Action, except they would occur at a slower speed and would continue for a longer period.

#### **11.3.1.4 No-Action**

The visual and aesthetic impacts associated with the No-Action Alternative would be less than the Proposed Action, Alternative 1, and Alternative 2. The estimated annual amount of extraction under No-Action would be substantially less (20,000 tons annually). It is assumed that this decrease in annual and corresponding net volume compared to the action alternatives would have a positive effect on the views of the site under No-Action because of the expected decrease in the amount of site disturbance and other associated mining activities.

However, the mining operation and associated visual impacts under the No-Action Alternative would occur indefinitely, rather than a finite 50 years (Alternative 2), 40 years (Alternative 1), or 35 years (Proposed Action).

In addition, the hours of operation under the No-Action Alternative would remain the current 7 a.m. to 7 p.m. Monday through Friday and 9 a.m. to 6 p.m. Saturday, rather than the more extended hours of mining with the Proposed Action and Alternative 1.

The Applicant's proposed 50-foot vegetated perimeter buffer and 200-foot shoreline buffer remain the same under No-Action. As with the Proposed Action, these buffers would assist in obscuring the views of mining.

## **11.3.2 How would the reintroduction of barging affect the visual environment?**

### **11.3.2.1 Proposed Action**

The barge loading operation would be visible to residents, since the dock facility juts out from the shoreline and is clearly visible from surrounding communities. During times of active mining, barges could be loaded almost constantly at the site. The activity would introduce industrial characteristics to the beach, which, for the past 20 years, has been rural and residential in nature. Other tugs with barges may also be seen as they hold offshore to wait as another barge is being loaded. Up to four 10,000-ton barges (or a greater number of smaller barges) would be visible under the Proposed Action, potentially 24 hours a day.

At night, barge loading would be visible due to lighting on tugs and on the dock. The dock would not be lit up in its entirety, since lighting is required only at specific locations where people are working. Lighting may include lighting of the distribution point, where sand and gravel is actually placed on the barge. Lighting would be shielded to direct light into the barge. Tug pilots may use spotlights or bright deck lights as needed to maneuver barges back and forth to distribute the load.

### **11.3.2.2 Alternative 1**

Under Alternative 1, the reduction of barging may offset some changes in nighttime character at the site. The barge operation under Alternative 1 would be 16-hour days (rather than 24-hour days in the Proposed Action) which would leave a portion of the day with no visible mining activity. Under this alternative, there would be barge loading and tugboat activity only between the hours of 6 a.m. and 10 p.m. Monday through Friday and 9 a.m. and 6 p.m. Saturday. Under Alternative 1, two 10,000-ton barges loaded each weekday and one on Saturday (or a greater number of smaller barges) would be seen entering, being loaded, and then leaving the site. In contrast, up to four 10,000-ton barges could be seen with the Proposed Action, 24 hours a day. With Alternative 1, some material would be transported by truck, averaging five trucks per day, 6 days a week.

### **11.3.2.3 Alternative 2**

Under Alternative 2, during active mining, barges would be expected to be seen at the site up to 12 hours per day (7 a.m. to 7 p.m.) except Sundays, when no barging would occur.

#### **11.3.2.4 No-Action**

Under No-Action, as defined in Chapter 2, there would be no barge loading and tugboat activity. The existing dock would remain in its existing condition, with no additional use. All material would be transported by truck, averaging five trucks per day, 6 days a week. The views of the shoreline and dock area would remain the same as under current conditions.

### **11.4 Adverse Impacts and Mitigation**

#### **11.4.1 Significance Criteria**

King County considers the following as indicators of significance for light, glare, and aesthetics impacts under SEPA.

- Violating King County Codes for light and glare.
- Producing sufficient visual changes in the landscape so as to severely restrict or eliminate the use and enjoyment of areas currently used by people for housing and/or recreation.

#### **11.4.2 Measures Already Proposed by the Applicant or Required by Regulation**

The following measures have been proposed by the Applicant to mitigate impacts or restore the natural character of the landscape during and following mining under the action alternatives:

- a. A 50-foot vegetated perimeter buffer and 200-foot shoreline buffer would be maintained.
- b. As required by the Washington State Surface Mining Act, active mining/reclamation activities would be limited to 64 acres at a time, with up to two 32-acre phases (one being mined, the other being actively reclaimed).
- c. The Applicant would hydroseed slopes and plant the floor of the mine with Douglas-fir, as described in Chapter 2.

Per KC 21A.22, Mineral Extraction:

*Lighting shall (1) be limited to that required for security, lighting of structures and equipment, and vehicle operations; and (2) not direct glare onto surrounding properties.*

### **11.4.3 Remaining Adverse Impacts and Additional Measures**

#### **11.4.3.1 Visual Impact 1 – Change in Overall Visual Character of the Site**

**Specific Adverse Environmental Impact.** Mining would physically change the site. Open excavations and moving machinery would be visible from many locations during mine operation. At the completion of mining, site topography would be different than it is now.

#### **11.4.3.2 Visual Mitigation 1**

Additional measures that could further offset visual disturbances under any of the action alternatives include the following:

- a. Restore forest wherever possible, as described in Chapter 5.
- b. To provide a more natural appearance, contour slopes with undulating terracing, rather than traditional linear terracing.
- c. Increase the buffers at the western and eastern corners of the property to increase screening and reduce the visual presence of the operation to the Gold Beach and Sandy Shores Communities. Increased buffers designed to protect the existing forested bluffs would be most effective. Hypothetical locations for increased buffer areas are shown in [Figure 11-8](#). The larger buffers would also help to reduce potential impacts of noise and dust on adjacent communities (see Chapters 3 and 7).

**Regulatory/Policy Basis of Condition.** King County Resource Land Policy RL-411 states that conditions and mitigations for significant adverse environmental impacts associated with mining operations should be required, especially in the following areas:

- (a) Air quality;
- (b) Environmentally sensitive areas;
- (c) Noise levels;
- (d) Vibration;
- (e) Light and glare;
- (f) Vehicular access and safety;
- (g) Visual impacts;
- (h) Cultural and historic features and resources;
- (i) Site security; and

(j) Others unique to specific sites and proposals.

## **11.5 Cumulative Impacts**

Development of the site would add to changes that have occurred on Maury and Vashon Islands, including the development of several gravel mines and the construction of residential subdivisions. These prior disturbances have resulted in permanent change in the character of the area. The proposed mining operation would increase the visual presence of people and activity in the area over what has already occurred.

## **11.6 Significant Unavoidable Adverse Impacts**

Increased mining and barging would result in an obvious change in topography and overall visual character of the site. Because the site is located near a shoreline, activities at the site would be visible from many vantage points. Nevertheless, the types of visual changes that would occur are to be expected under the Mineral zoning which the site is currently designated.

While views of the site would undoubtedly change, the overall impact is limited, since the only views that would be impacted are direct views of the site and associated dock. The predominant and highly valued views of Puget Sound and Mount Rainier would not be affected.

Several mitigation measures are available that would greatly reduce the total area that would be visible at any one time. In addition, vegetation management measures to restore madrone forest and riparian habitat would be effective in softening the visual character of the site. Mining would not result in the entire site being exposed, but rather exposure would occur in 32-acre patches.

The existing site already contains many of the visual elements that would occur with the proposed project, including exposed sand as well as a dock.

The project would not direct glare onto surrounding properties (per KC 21A.22.070).

With these considerations, it is expected that visual changes, while adverse and expected to be disliked by surrounding communities, are not sufficient to be considered significant under SEPA.